CLAIMS

1. Junction, in particular for photovoltaic cells, optical sensors or the like, comprising a layer made of a first microporous or nanoporous material chosen among silicon, gallium antimonide or gallium arsenide, and a layer made of a second material chosen between a metal or a semiconductor, deposited onto the layer made of said first porous material, characterized in that the pores of the layer made of said first material are at least partially filled with the aforesaid second material.

2. Junction according to claim 1, characterized in that the second material is deposited into the pores of the first material by means of electrochemical deposition techniques.

3. Junction according to claim 1 or claim 2, characterized in that an ITO layer is deposited above the layer made of the second material.

4. Photovoltaic cell, characterized in that it comprises a junction according to one or more of the claims 1-3.

5. Cell according to claim 4, characterized in that the first material is porous silicon and in that the surface of porous silicon is covered with metal nanoclusters, which carry out at the same time the Shottky junction and the conductive layer required for transmitting the general charge to exploiting means.

6. Process for carrying out a junction, particularly for photovoltaic cells, optical sensors or the like, in which a layer made of a first microporous or nanoporous material chosen among silicon, gallium antimonide and gallium arsenide, and a layer made of a second material chosen between a metal and a semiconductor, deposited onto the layer of said first porous ma-

terial, are prepared, characterized in that the pores of the layer made of said first material are at least partially filled with the aforesaid second material.

7. Process according to claim 6, characterized in that said first material is obtained by anodization in a bath of hydrofluoric acid.

8. Process according to claim 7, characterized in that said first porous material is obtained by anodization, with an electric current of about 10 mA/cm^2, and in that after a normal anodization step a solution of a metal compound is introduced into the bath, for instance a gold chloride, which penetrates into the pores of the first porous material and gives rise to the reduction of the metal, gold for instance, on the first material.

9. Process according to claim 8, characterized in that metal reduction is favored by inverting cell polarity during the final step of the process.

10. Process according to claim 9, characterized in that the substrate made of the first material is made completely porous, with through pores, and a cathode and an anode are arranged after and before the substrate, thus forcing metal ions to go through it, so that a part of them reduces in the porous substrate, which can be kept at the same potential as the cathode or at a floating potential.